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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,349	03/30/2004	Tomoo Iijima	040158	2684
38091	7590	04/09/2009	EXAMINER	
TESSERA			KALAM, ABUL	
LERNER DAVID et al.			ART UNIT	PAPER NUMBER
600 SOUTH AVENUE WEST			2814	
WESTFIELD, NJ 07090			MAIL DATE	DELIVERY MODE
			04/09/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/812,349

Applicant(s)

IIJIMA ET AL.

Examiner

Abul Kalam

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 52-69 is/are pending in the application.
- 4a) Of the above claim(s) 55 and 60-66 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 52-54, 56-59 and 67-69 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/08)
Paper No(s)/Mail Date 3/12/09
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Species I, corresponding to claims 52-54, 56-59 and 67-69, in the reply filed on January 12, 2009, is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 52-54 and 56 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Chang (US 6,376,769).

Regarding claims 52 and 56, Chang discloses a wiring circuit panel (Fig. 16) comprising:

A flexible circuit panel (310-1);

a first metal layer (313/332) including a wiring circuit pattern having a major surface extending in lateral directions (fig. 16);

a flexible insulating film (311-1, col. 18 lines 30-31), overlying said major surface of said wiring circuit pattern (313/332), said insulating film (311-1) having a major surface remote from said major surface of said wiring circuit pattern (313/332);

a plurality of discrete solid metal bumps (315) overlying said major surface of said wiring circuit pattern (313/332) and extending upward through openings in said insulating film (311-1), said plurality of metal bumps (315) having upwardly facing top faces, said top faces being flush (Fig. 15B) with exposed regions of said major surface of said insulating film (311-1);

and a plurality of solder balls (334) disposed in contact with said top of said plurality of metal bumps (315), said plurality of solder balls (334) being in conductive communication with said metal bumps (315); and

a second circuit panel (340) having a substantially rigid dielectric element (print circuit board, col. 20 lines 19-24) and a second wiring circuit pattern overlying at least a portion of said rigid dielectric element (inherently a printed circuit board has circuit patterns), said second circuit panel 340 being joined to said flexible circuit panel 310

such that said second wiring circuit pattern conductively communicates with said wiring circuit panel of said flexible circuit panel through said plurality of metal bumps 315 (Fig. 16, col. 20 lines 24-27).

As to the ground of rejection under section 103(a), the limitation "etched" which describes a method of forming the solid metal bumps, is drawn to an intermediate process step that does not affect the structure of the final device. Therefore, the process limitations recited in a "product by process" claim does not carry patentable weight in a claim drawn to structure because a distinct structure is not necessarily produced. *In re Thorpe*, 227 USPQ 964 (Fed. Cir. 1985).

Regarding claims 53-54, Chung discloses the wiring circuit panel wherein the first metal layer and plurality of bumps consist essentially of copper (col. 20 line 4); and wherein at least a portion of insulating film is flexible (311-1, col. 18 lines 30-31).

3. Claims 57-59 and 67-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chung ('769) in view of Applicant's Admitted Prior Art (APA).

Regarding claim 57, Chung discloses the wiring circuit panel as claimed in claim 52, the first metal layer 332/313, said plurality of metal bumps 315 overlying said first metal layer 332/313.

But, Chung does not disclose the wiring circuit panel further including a second metal wherein said second metal layer is an etch stop layer which substantially resists an etchant which would attack a first metal included in said first metal layer.

However, APA discloses the wiring circuit panel further including a second metal (8 (20b), Fig. 13) wherein said second metal layer is an etch stop layer which substantially resists an etchant which would attack a first metal 10 (20c) included in said first metal layer, specification page 3 lines 1-7. Therefore, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to use the second barrier layer 8 (20b) teaching of APA with Chung's device, because it would have provided the protection for the wiring layer as taught by APA, specification page 3 lines 6-7.

Regarding claims 58-59, Chung discloses the wiring circuit panel as claimed in 57 comprises plurality of metal bumps (315), wherein said plurality of metal bumps (315) and said first metal layer (332/313) consists essentially of a first metal.

The process limitations of wherein "metal bumps are formed by etching a third metal layer overlying said second metal layer," in claim 58, do not carry weight in a claim drawn to a structure. *In re Thorpe*, 277 USPQ 964 (Fed. Cir. 1985).

Regarding claim 67, Chung does not disclose a metallic etching barrier layer between the metal bumps and the first metal layer. However, APA teaches a metallic etching barrier layer (8, Fig. 13E) disposed between said plurality of solid metal bumps (6) and said major surface of said first metal layer (20c, Fig. 13E). Therefore, at the time the invention was made, it would have been obvious to one of ordinary skill in the art, to incorporate APA's teaching into Chung's device, for the same reasons as set forth above.

Regarding claims 68 and 69, Chung does not disclose wherein the metal bump is conical and trapezoidal in shape. However, APA teaches further teaches wherein the metal bump is conical (pg. 2, lines 23-24) and trapezoidal in shape (pg. 3, lines 3-4).

Furthermore, it is apparent that forming the metal bump with a conical and trapezoidal shape is not critical to the invention (Applicant has not provided any evidence of critically for such dimensions), and thus, one of ordinary skill in the art would have been led to the recited dimensions through routine experimentation. Indeed, it has been held that mere dimensional limitations are *prima facie* obvious, absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). See also MPEP 2144.04(IV)(B).

Response to Arguments

Applicant's arguments with respect to claims 52-54, 56-59 and 67-69, have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abul Kalam whose telephone number is (571)272-8346. The examiner can normally be reached on Monday - Friday, 9 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. K./
Examiner, Art Unit 2814

/Phat X. Cao/
Primary Examiner, Art Unit 2814